SUMMARY

PROFESSIONAL TRAINING: EXPLORATORY STUDIES OF UNDERGRADUATE MEDICAL EDUCATION IN RELATION TO CHRONICALLY ILL PATIENTS

The subject of this thesis is the preparation of students for the practice of medicine by undergraduate medical education. The studies presented in this thesis analysed and investigated professional training with attention focused on a particular patient group, the chronically ill. The five chapters of the thesis are summarised below.

Chapter 1 Introduction and research questions

Professional training encompasses a range of educational activities. Those activities are aimed at the acquisition of knowledge, skills and professional behaviours which must be used in an integrated manner in tasks like a single consultation, seeing patients in surgery and work as a ward resident. After finishing their basic medical training doctors complete their education in postgraduate training programmes in general practice, one of the medical specialties or public health. Postgraduate training is also referred to as vocational training. Along the medical education continuum vocational training is a continuation of basic medical training. Basic medical training lays the foundation for all of the postgraduate training programmes. This means that basic medical training should focus on aspects of professional work that different disciplines have in common. By contrast, vocational training should focus on discipline-specific aspects.

Three of the challenges faced by medical education were addressed in this thesis. The first challenge is the need to design a medical curriculum the content of which is consistent with the requirements for medical practice. In order to achieve this goal, medical education should incorporate changes that occur in medical practice. The second challenge is to identify which aspects of medical professional practice are shared by different disciplines. The third challenge is to design a curriculum that enables students to master the required content and aspects that are not discipline-specific and integrate them into their professional practice. As a consequence medical education must resolve the paradox of having to teach aspects that different disciplines have in common within discipline-specific contexts.

Faced with these three challenges, faculties of medicine have to come up with solutions. The connection between basic medical education and postgraduate training programmes has been a cause of dissatisfaction for quite some time

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De vertaling van de samenvatting in het Engels is verzorgd door mw. M.L.B. Gorsira, vertaler, Onderwijsinstituut, Faculteit der Geneeskunde, Universiteit Maastricht.

now.[9,15] A study we performed showed that the objectives set out in Blueprint 1994 (the common general - i.e. not discipline-specific - objectives of undergraduate medical education in the Netherlands) have not been operationalised into clinical training programmes (page 11). In addition, the objectives lack an inventory of relevant tasks which should guide curriculum design to ensure that students are given the opportunity of performing them. Finally, undergraduate clinical training can still be characterised as an educational "white spot on the map" or a "black box".[14,99]

In order to investigate these challenges to basic medical training, a suitable category of patients had to be selected. Chronically ill patients were considered to be a useful domain for this study for several reasons. Firstly, health care for chronically ill patients is undergoing radical changes, which warrant inclusion in basic medical training. Secondly, adequate performance in almost all of the medical professions is likely to involve contacts with chronically ill patients and thus requires basic medical training to provide preparation for those encounters. Thirdly, the encounter with a chronically ill patient offers a suitable model for all aspects to be covered by basic medical training. A review of the international literature demonstrated that chronic illness is internationally regarded as a relevant domain for medical education (page 20). In this thesis three central questions about basic medical training in relation to chronically ill patients were addressed:

1 Does undergraduate medical education respond adequately to the changes in the care for the chronically ill that are occurring in medicine and health care?
2 What are the characteristics of medical professional practice in relation to the chronically ill?
3 How can clinical training provide medical students adequate preparation for encounters with chronically ill patients in professional practice?

Chapter 2 The current state of affairs regarding chronic illness in Dutch undergraduate medical education.

This chapter is devoted to the first central question: Does undergraduate medical education respond adequately to the changes in the care for the chronically ill that are occurring in medicine and health care?

Basic medical training comprises three components which are closely interconnected: objectives, methods and assessment. The objectives of undergraduate medical education include descriptions of situations in daily patient care for which students should be prepared by medical training. In order to achieve those objectives students are provided with learning resources (study materials, courses, traineeships, et cetera) and eventually they are tested to assess whether the objectives have been achieved. In goal-oriented and effective training the three components of the objective-method-assessment cycle are closely interwoven. In medical educational practice, however, adequate interrelationships between these elements are notoriously difficult to achieve and therefore not automatically feasible. When objectives, methods and assessment are studied in isolation, outcomes related to one component do not necessarily provide insights about the other ones and may even present a distorted picture of the quality of basic medical training. In view of

these considerations, we performed three studies to address the first central question.

The first study dealt with the question as to whether there were shortcomings in the area of chronic illness in the objectives of undergraduate medical education published in Blueprint 1994. We investigated whether experts in the field of chronic illness would confirm our suspicions that there were gaps in the lists of general objectives and problems concerning chronic illness presented in Blueprint 1994. We used a consensus procedure (modified Delphi technique) to elicit experts' opinions. A panel of experts were asked to give their opinions about additional final objectives. The procedure resulted in 72 new general objectives and problems and 21 modified versions of existing ones. The majority of the proposals concerned tasks (including cooperating) related to psychosocial and social consequences of chronic illness. The conclusion of this study was that the objectives of Blueprint 1994 did indeed show deficiencies in relation to chronic illness.

The second study sought an answer to the question as to whether the Dutch undergraduate medical curricula provide students sufficient opportunities for attaining appropriate preparedness for contacts with chronically ill patients. Curriculum guides, which include information about curricular content, course schedules, examination dates and examination rules and regulations, were analysed to obtain answers to two questions. (1) How much attention do the Dutch faculties of medicine devote to the psychosocial and social consequences of chronic disorders and to the role of the doctor therein? (2) How is the attention for the consequences of chronic disorders distributed across the areas of knowledge, skills and professional behaviour? The outcomes of the study revealed a lack of systematic attention for the psychosocial and social consequences of chronic illness and the role of the doctor in relation to these factors in the Dutch undergraduate medical curricula. What attention was being paid to these topics was disproportionally focussed on knowledge acquisition and the curriculum presented sizeable gaps with respect to skills and professional behaviours in the area of chronic illness. These findings indicated that the Dutch medical curricula did not provide sufficient opportunities for students to attain adequate preparedness for contacts with chronically ill patients.

The third study surveyed recent graduates from Groningen university. They were asked to respond to four questions. (1) Which percentage of graduates have regular contacts with chronically ill patients? (2) How well do they consider themselves prepared for those contacts by their basic medical training? (3) Do doctors from different disciplines give different answers to these questions? (4) What is the effect of postgraduate training on the perceived gaps in training with respect to the care of the chronically ill? The results showed that 86% of graduated doctors saw chronically ill patients in professional practice and that they did not feel adequately prepared for dealing with these encounters by their basic training. No differences were found between disciplines. One third of the respondents were of the opinion that systematic postgraduate training had not been sufficient to remedy the deficiencies. The conclusion seemed justified that medical

education in the Netherlands failed to offer students adequate preparation for their professional encounters with chronically ill patients.

Some time has elapsed since the studies described in this chapter were performed. During that time attention for chronic illness has increased. Blueprint 2001, the successor to Blueprint 1994 as well as several new medical curricula now devote more attention to this group of patients. Nevertheless, many students will not benefit from these improvements. This supports the conclusion that the answer to the central question can only be that the faculties of medicine have failed to respond adequately to developments in medicine and health care concerning the chronically ill.

Chapter 3 Characteristics of the consultation with a chronically ill patient

For which tasks relevant to encounters with chronically ill patients should basic medical training prepare students? In order to be able to answer that question we needed an inventory of the tasks doctors undertake in medical practice and the variation within those tasks. This chapter addresses the second central question: What are the characteristics of medical professional practice in relation to the chronically ill?

In order to answer that question semi-structured interviews were conducted with ten doctors who saw many chronically ill patients in their practice. Grounded theory was used to analyse the data. The study question evolved into a more specific question about the characteristics of initial consultations of chronically ill patients: the cycle of consultations which starts when the patient first presents with complaints and continues to the stage when the patient has been diagnosed, therapy and follow-up have started and the patient's situation has been stabilised to a greater or lesser degree.

The study resulted in a descriptive model of initial consultations of chronically ill patients. This phase starts by steps taken to identify what caused the patient's complaints and symptoms and any psychosocial or social consequences of the complaints. The results showed that individual doctor patient encounters varied widely throughout the entire cycle of initial consultations. The differences pertained to what was dealt with during the encounters (content) as well as to how this was dealt with (form). Initial consultations of chronically ill patients were first and foremost characterised by variation. Form and content of individual consultations emerged every time from the combined effects of the patient's characteristics, the illness, the healthcare setting where the encounter took place and the individual doctor. Each of those four factors appeared to constitute a largely independent source of variation.

The study should be continued and broadened to refine the model and develop it into a theory which describes the initial consultation in chronic illness. The method we used generates data that can form the basis for the development of a typology. Such a typology needs to be developed further to achieve a format that is sufficiently detailed to guide educational development and at the same time steers clear of too long and detailed listings.

Chapter 4 Phases in students' preparation for encounters with chronically ill patients in basic medical training

Basic medical training offers students opportunities for preparing for encounters with chronically ill patients. The third central question of this thesis addressed the educational format used to achieve this: How can clinical training provide medical students adequate preparation for encounters with chronically ill patients in professional practice?

This chapter presents an analytical theoretical discussion. Firstly, we formulated a mission statement for basic medical training focused on the chronically ill. The mission statement declared that students should acquire capabilities regarding the biomedical aspects of chronic illness as well as its psychosocial and social consequences. Students should also learn to conduct a consultation with a chronically ill patient and learn to deal with the differences between such consultations. Finally, students should learn to integrate isolated activities (like an individual consultation) within larger units (like a series of consecutive consultations in the doctor's surgery) and team work (doctors, nurses, other health care professionals) in medical practice.

Subsequently, we analysed which conditions must be met by a programme of clinical rotations in order to offer students adequate opportunities for achieving the required capabilities. The goal stated in both the mission statement and Blueprint 2001 is for students to be able to function independently to a certain degree. This corresponds with the position of the newly graduated doctor in medical practice. In this situation supervision will only be available from a distance and on many occasions only when explicitly asked for. What is known about the development from novice to expert and about the learning of complex tasks suggests that students will only be able to reach this level of ability when rotations in one discipline are fairly long.

Medical professionals from various disciplines are involved in the care for the chronically ill. This means that doctors frequently find themselves in a situation where they have to collaborate or exchange information with other doctors. If collaboration is to be effective the various parties should at least have some idea of their respective expertise and approaches. Three health care domains appear to be the most relevant ones for chronic illness: general practice, hospital medicine and public health. Extended rotations in these domains are needed for students to gain sufficient experience with the specific aspects of these domains.

The purpose of a longitudinal track of clinical rotations is for students to function at an increasingly higher level. Transfer of what is learnt during one rotation to following rotations can be facilitated by:

- focusing on components of tasks that are similar for different disciplines;
- opportunities for students to adequately prepare for the tasks they are expected to undertake during clinical rotations through theoretical and skills training;
- alternating between working in the clinical setting during rotations and regular knowledge and skills courses;

- careful alignment of content and sequencing of rotations geared towards the growth of students' capabilities;
- adequate supervision of students in their growth towards independence.

The end of rotation assessment requires a broad range of testing tools. Test content must be determined by the discipline of the student's most recent rotation. Measurement, weighting and judgement must focus on objectives that are relevant to different disciplines.

The prerequisites for clinical training that were developed were subsequently applied in devising a programme for clinical rotations which offers students adequate preparation for encounters with chronically ill patients. The design included three different types of rotations.

1 A final rotation lasting six months.
2 Three intermediate rotations of three months duration: one rotation in general practice, one in a hospital setting and one in public health.
3 A number of brief initial rotations lasting six to eight weeks, which are primarily intended to enable students to gain sufficient experience and routine to derive maximum benefit from the intermediate rotations.

The design ensures that different rotations focus on specific goals related to the discipline in question as well as on the general aim of preparing students for following rotations by paying attention to objectives that are not discipline-specific. In order to facilitate the transfer of what students have learned from one rotation to the next one, the rotations are interspersed with a combination of single days and weeks when students return to the medical school for regular teaching. The days support the learning that takes place during the clinical rotation and the weeks are intended for reflection on completed rotations and systematic preparation for the next ones.

There is a scarcity of data about clinical training during rotations. As a result the choices we made in this respect were mainly based on analysis and application of what is known from cognitive psychology and studies of traineeships in (higher) vocational training. This laid a solid foundation under the conditions to be met by a longitudinal track of clinical rotations and - consequently - under the design presented in this chapter. The method which we used raised new questions which are worth pursuing: which are the true similarities and differences between the doctor's tasks in different disciplines and how does students' learning proceed during rotations: is it really true that students learn discipline-related biomedical knowledge and skills first?

The clinical rotation track which we developed appeared to offer students adequate opportunity for meeting the objectives of Blueprint 2001 as well as appropriate preparation for encounters with chronically ill patients.

Chapter 5 Discussion

For answering the questions addressed in chapter 2 we were able to rely on conventional methods of medical educational research. However, no such methods were available for answering the questions dealt with in chapters 3 and 4. So far medical education lacks a tradition in the study of doctors' tasks as well as the

subsequent translation of study outcomes into educational objectives, goals and courses. This thesis presents a first attempt at defining a theoretical framework for such studies. Inevitably, many questions have remained unanswered and will have to be investigated in further studies. The practice of medicine offers a broad field for research to support educational development. Three questions might guide such a research programme: what happens, how does it happen and what are the outcomes? Those studies should not only take account of doctors, but also of their patients and others with whom they collaborate in day-to-day practice. As a natural follow-up to those studies educational issues should be addressed concerning the objectives that can realistically be achieved within a particular medical educational setting, the most appropriate courses and learning resources and the best assessment tools for evaluating the outcomes of the learning process.

Chapter 2 showed that the Dutch faculties of medicine failed to adequately translate new developments in health care for chronically ill patients into their curricula. The question as to why this should be so warrants further investigation. An important conclusion would seem to be that the faculties of medicine cannot rely exclusively on the departments to build and update expertise about subjects and issues not related to one specific discipline or to monitor how those subjects are incorporated into the curriculum. For solutions we should look to an organisational level above that of the disciplines. The initiative should come from the directors of medical education and the executive boards of academic medical centres. A second issue which may be relevant is the necessity to carefully align the learning processes and activities during clinical rotations with educational content. If this is neglected, the learning effects of clinical rotations are likely to be so powerful that students will quickly forget what they learned during prior training. This is especially important for faculties of medicine which want to gear their training programme to innovations in medical practice. Students and residents as well as other hospital workers should take part in activities to facilitate the intended changes. There is ample opportunity in this respect for academic medical centres to promote synergy between undergraduate medical education, postgraduate education and the hospital organisation.

Finally, we return to the issue of the suitability of the chronically ill as the focus of attention in studies into basic medical training. Chronic illness has proved to be a useful case to investigate whether new developments in medicine and health care do indeed find their way into medical education. Chronically ill patients are a relevant group for initial professional training because almost all doctors encounter this patient group in daily clinical practice.